WHAT IS CLAIMED IS:

1. A hard disk drive comprising:

a hard disk having one or more spiral servo tracks written thereon, wherein each of the servo tracks comprises servo data comprising one or more synchronization symbols;

a head adapted to produce a waveform as the head moves across the servo track;

a sampler adapted to obtain a plurality of samples of the waveform, wherein the plurality of samples of the waveform comprises one of the synchronization symbols; and

a processor adapted to

determine an estimated location of a peak amplitude of the waveform with respect to the plurality of samples of the waveform,

determine a sampling phase defined by a number of the samples between one of the synchronization symbols and a predetermined one of the samples of the waveform,

determine a compensation amount based on a compensation curve and the sampling phase,

determine a refined estimated location of the peak amplitude of the waveform based on the estimated location of the peak amplitude of the waveform and the compensation amount, and

determine the location of the center of the servo track based on the refined estimated location of the peak amplitude of the waveform.

2. The apparatus of claim 1, wherein the processor is further adapted to:

determine an offset defined by a number of the samples of the waveform between the estimated location of the peak amplitude of the waveform and a second predetermined one of the samples; and

select as the compensation curve one of a plurality of candidate compensation curves based on the offset.

3. The apparatus of claim 1, wherein the sampler is further adapted to:

obtain a window of the samples of the waveform from the hard disk, wherein the window comprises n frames each comprising m of the samples of the waveform, and wherein the m samples of the waveform within at least one of the n frames comprises the one of the synchronization symbols.

4. The apparatus of claim 3, wherein the processor is further adapted to:

determine the estimated location of a peak amplitude of the waveform with respect to the window of the samples.

5. The apparatus of claim 3, wherein the processor is further adapted to:

determine a sampling phase defined by a number of the samples between the one of the synchronization symbols and the start of the one of the n frames comprising the one of the synchronization symbols.

6. The apparatus of claim 1, further comprising:

a head controller adapted to cause the head to write further servo data to the hard disk at a location based on the determined location of the center of the servo track.

7. The apparatus of claim 1, wherein the processor is further adapted to:

compute a demodulation value of the samples within each frame;

integrate the demodulation values;

select the integrated demodulation value having a value that is one-half of the value of the largest integrated demodulation value;

select the sample corresponding to the selected integrated demodulation value; and

determine the estimated location of a peak amplitude of the waveform based on the selected sample.

8. A hard disk drive comprising:

hard disk means for storing data, the hard disk means having one or more spiral servo tracks written thereon, wherein each of the servo tracks comprises servo data comprising one or more synchronization symbols;

head means for producing a waveform as the head moves across the servo track;

sampler means for obtaining a plurality of samples of the waveform, wherein the plurality of samples of the waveform comprises one of the synchronization symbols; and

processor means for

determining an estimated location of a peak amplitude of the waveform with respect to the plurality of samples of the waveform,

determining a sampling phase defined by a number of the samples between one of the synchronization symbols and a predetermined one of the samples of the waveform,

determining a compensation amount based on a compensation curve and the sampling phase,

determining a refined estimated location of the peak amplitude of the waveform based on the estimated location of the peak amplitude of the waveform and the compensation amount, and

determining the location of the center of the servo track based on the refined estimated location of the peak amplitude of the waveform.

9. The apparatus of claim 8, wherein the processor means:

determines an offset defined by a number of the samples of the waveform between the estimated location of the peak amplitude of the waveform and a second predetermined one of the samples; and

selects as the compensation curve one of a plurality of candidate compensation curves based on the offset.

10. The apparatus of claim 8, wherein the sampler means:

obtains a window of the samples of the waveform from the hard disk, wherein the window comprises n frames each comprising m of the samples of the waveform, and wherein the m samples of the waveform within at least one of the n frames comprises the one of the synchronization symbols.

11. The apparatus of claim 10, wherein the processor means:

determines the estimated location of a peak amplitude of the waveform with respect to the window of the samples.

12. The apparatus of claim 10, wherein the processor means:

determines a sampling phase defined by a number of the samples between the one of the synchronization symbols and the start of the one of the n frames comprising the one of the synchronization symbols.

13. The apparatus of claim 8, further comprising:

head controller means for causing the head to write further servo data to the hard disk at a location based on the determined location of the center of the servo track.

14. The apparatus of claim 8, wherein the processor means:

computes a demodulation value of the samples within each frame;

integrates the demodulation values;

selects the integrated demodulation value having a value that is one-half of the value of the largest integrated demodulation value;

selects the sample corresponding to the selected integrated demodulation value; and

determines the estimated location of a peak amplitude of the waveform based on the selected sample.

15. An apparatus for determining the location of the center of a servo track embodied in a recording medium, wherein the servo track comprises servo data comprising one or more synchronization symbols, the apparatus comprising:

a sampler adapted to obtain a plurality of samples of a waveform produced as a head moves across the servo track, wherein the plurality of samples of the waveform comprises one of the synchronization symbols; and

a processor adapted to

determine an estimated location of a peak amplitude of the waveform with respect to the plurality of samples of the waveform,

determine a sampling phase defined by a number of the samples between one of the synchronization symbols and a predetermined one of the samples of the waveform,

determine a compensation amount based on a compensation curve and the sampling phase,

determine a refined estimated location of the peak amplitude of the waveform based on the estimated location of the peak amplitude of the waveform and the compensation amount, and

determine the location of the center of the servo track based on the refined estimated location of the peak amplitude of the waveform.

16. The apparatus of claim 15, wherein the processor is further adapted to:

determine an offset defined by a number of the samples of the waveform between the estimated location of the peak amplitude of the waveform and a second predetermined one of the samples; and

select as the compensation curve one of a plurality of candidate compensation curves based on the offset.

17. The apparatus of claim 15, wherein the sampler is further adapted to:

obtain a window of the samples of the waveform from the recording medium, wherein the window comprises n frames each comprising m of the samples of the waveform, and wherein the m samples of the waveform within at least one of the n frames comprises the one of the synchronization symbols.

18. The apparatus of claim 17, wherein the processor is further adapted to:

determine the estimated location of a peak amplitude of the waveform with respect to the window of the samples.

19. The apparatus of claim 17, wherein the processor is further adapted to:

determine a sampling phase defined by a number of the samples between the one of the synchronization symbols and the start of the one of the n frames comprising the one of the synchronization symbols.

20. The apparatus of claim 15, further comprising:

a head controller adapted to cause the head to write further servo data to the recording medium at a location based on the determined location of the center of the servo track.

21. The apparatus of claim 15, wherein the processor is further adapted to:

compute a demodulation value of the samples within each frame;

integrate the demodulation values;

select the integrated demodulation value having a value that is one-half of the value of the largest integrated demodulation value;

select the sample corresponding to the selected integrated demodulation value; and

determine the estimated location of a peak amplitude of the waveform based on the selected sample.

22. An apparatus for determining the location of the center of a servo track embodied in a recording medium, wherein the servo track comprises servo data comprising one or more synchronization symbols, the apparatus comprising:

sampler means for obtaining a plurality of samples of a waveform produced as a head moves across the servo track, wherein the plurality of samples of the waveform comprises one of the synchronization symbols; and

processor means for

determining an estimated location of a peak amplitude of the waveform with respect to the plurality of samples of the waveform,

determining a sampling phase defined by a number of the samples between one of the synchronization symbols and a predetermined one of the samples of the waveform,

determining a compensation amount based on a compensation curve and the sampling phase,

determining a refined estimated location of the peak amplitude of the waveform based on the estimated location of the peak amplitude of the waveform and the compensation amount, and

determining the location of the center of the servo track based on the refined estimated location of the peak amplitude of the waveform.

23. The apparatus of claim 22, wherein the processor means:

determines an offset defined by a number of the samples of the waveform between the estimated location of the peak amplitude of the waveform and a second predetermined one of the samples; and

selects as the compensation curve one of a plurality of candidate compensation curves based on the offset.

24. The apparatus of claim 22, wherein the sampler means:

obtains a window of the samples of the waveform from the recording medium, wherein the window comprises n frames each comprising m of the samples of the waveform, and wherein the m samples of the waveform within at least one of the n frames comprises the one of the synchronization symbols.

25. The apparatus of claim 24, wherein the processor means:

determines the estimated location of a peak amplitude of the waveform with respect to the window of the samples.

26. The apparatus of claim 24, wherein the processor means:

determines a sampling phase defined by a number of the samples between the one of the synchronization symbols and the start of the one of the n frames comprising the one of the synchronization symbols.

27. The apparatus of claim 22, further comprising:

head controller means for causing the head to write further servo data to the recording medium at a location based on the determined location of the center of the servo track.

28. The apparatus of claim 22, wherein the processor means:

computes a demodulation value of the samples within each frame;

integrates the demodulation values;

selects the integrated demodulation value having a value that is one-half of the value of the largest integrated demodulation value;

selects the sample corresponding to the selected integrated demodulation value; and

determines the estimated location of a peak amplitude of the waveform based on the selected sample.

29. A method for determining the location of the center of a servo track embodied in a recording medium, wherein the servo track comprises servo data comprising one or more synchronization symbols, and wherein a waveform is produced in a head as the head moves across the servo track, the method comprising:

obtaining a plurality of samples of the waveform, wherein the plurality of samples of the waveform comprises one of the synchronization symbols;

determining an estimated location of a peak amplitude of the waveform with respect to the plurality of samples of the waveform;

determining a sampling phase defined by a number of the samples between one of the synchronization symbols and a predetermined one of the samples of the waveform;

determining a compensation amount based on a compensation curve and the sampling phase;

determining a refined estimated location of the peak amplitude of the waveform based on the estimated location of the peak amplitude of the waveform and the compensation amount; and

determining the location of the center of the servo track based on the refined estimated location of the peak amplitude of the waveform.

30. The method of claim 29, further comprising:

determining an offset defined by a number of the samples of the waveform between the estimated location of the peak amplitude of the waveform and a second predetermined one of the samples; and

selecting as the compensation curve one of a plurality of candidate compensation curves based on the offset.

31. The method of claim 29, wherein obtaining a plurality of samples of the waveform comprises:

obtaining a window of the samples of the waveform from the recording medium, wherein the window comprises n frames each comprising m of the samples of the waveform, and wherein the m samples of the waveform within at least one of the n frames comprises the one of the synchronization symbols.

32. The method of claim 31, wherein determining an estimated location of a peak amplitude of the waveform comprises:

determining the estimated location of a peak amplitude of the waveform with respect to the window of the samples.

33. The method of claim 31, wherein determining a sampling phase comprises:

determining a sampling phase defined by a number of the samples between the one of the synchronization symbols and the start of the one of the n frames comprising the one of the synchronization symbols.

34. The method of claim 29, further comprising:

writing further servo data to the recording medium at a location based on the determined location of the center of the servo track.

35. The method of claim 29, wherein determining an estimated location of the peak amplitude of the waveform comprises:

computing a demodulation value of the samples within each frame;

integrating the demodulation values;

selecting the integrated demodulation value having a value that is one-half of the value of the largest integrated demodulation value;

selecting the sample corresponding to the selected integrated demodulation value; and

determining the estimated location of a peak amplitude of the waveform based on the selected sample.

36. A computer program embodying instructions executable by a computer to for determining the location of the center of a servo track embodied in a recording medium, wherein the servo track comprises servo data comprising one or more synchronization symbols, and wherein a waveform is produced in a head as the head moves across the servo track, the computer program comprising:

determining an estimated location of a peak amplitude of the waveform with respect to a plurality of samples of the waveform, wherein the plurality of samples of the waveform comprises one of the synchronization symbols;

determining a sampling phase defined by a number of the samples between one of the synchronization symbols and a predetermined one of the samples of the waveform;

determining a compensation amount based on a compensation curve and the sampling phase;

determining a refined estimated location of the peak amplitude of the waveform based on the estimated location of the peak amplitude of the waveform and the compensation amount; and

determining the location of the center of the servo track based on the refined estimated location of the peak amplitude of the waveform.

37. The computer program of claim 36, wherein the method further comprises:

determining an offset defined by a number of the samples of the waveform between the estimated location of the peak amplitude of the waveform and a second predetermined one of the samples; and

selecting as the compensation curve one of a plurality of candidate compensation curves based on the offset.

38. The computer program of claim 36, further comprising:

obtaining a window of the samples of the waveform from the recording medium, wherein the window comprises n frames each comprising m of the samples of the waveform, and wherein the m samples of the waveform within at least one of the n frames comprises the one of the synchronization symbols.

39. The computer program of claim 38, wherein determining an estimated location of a peak amplitude of the waveform comprises:

determining the estimated location of a peak amplitude of the waveform with respect to the window of the samples.

40. The computer program of claim 38, wherein determining a sampling phase comprises:

determining a sampling phase defined by a number of the samples between the one of the synchronization symbols and the start of the one of the n frames comprising the one of the synchronization symbols.

41. The computer program of claim 36, wherein the method further comprises:

writing further servo data to the recording medium at a location based on the determined location of the center of the servo track.

42. The computer program of claim 36, wherein determining an estimated location of the peak amplitude of the waveform comprises:

computing a demodulation value of the samples within each frame;

integrating the demodulation values;

selecting the integrated demodulation value having a value that is one-half of the value of the largest integrated demodulation value;

selecting the sample corresponding to the selected integrated demodulation value; and

determining the estimated location of a peak amplitude of the waveform based on the selected sample.